California Environmental Contaminant Biomonitoring Program
Frequently Asked Questions

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- What is biomonitoring?
- What is the California Environmental Contaminant Biomonitoring Program?
- Why is biomonitoring important? What difference will it make to the health of Californians?
- Who will be biomonitored?
- Can I volunteer to be tested?
- What kinds of information and samples will be collected from participants?
- Which chemicals will be selected for biomonitoring in California?
- Who is carrying out the California Environmental Contaminant Biomonitoring Program?
- What is the Scientific Guidance Panel?
- How does California's Biomonitoring Program differ from the national program?
- What is the role of the federal Centers for Disease Control and Prevention ("CDC") in the California Program?
- When will biomonitoring results be available?
- How the public become involved with the California Biomonitoring Program?
- What can I do if I am concerned about an exposure to a toxic chemical?
- Where can I find more information about toxics and environmental health issues?

What is biomonitoring?

Biomonitoring is a technique for measuring chemicals in our bodies. It involves collecting a person's blood, urine, or another biological specimen and analyzing it to see if certain chemicals are present, and at what levels. A good example of biomonitoring is the widespread testing of children's blood to make sure that they do not have elevated levels of lead, which can cause a number of serious health problems.

We come into contact with hundreds of environmental chemicals each day through the food we eat, the beverages we drink, the air we breathe, and the products we use. Biomonitoring can be used to help understand our exposure to many environmental chemicals. In addition, biomonitoring can provide information about how well environmental protection efforts and laws are working to protect the public from too much exposure to specific toxic chemicals.

What is the California Environmental Contaminant Biomonitoring Program?

The California Environmental Contaminant Biomonitoring Program is a new initiative that will measure levels of environmental chemicals in California residents. The Program was authorized by the State Legislature[1] and signed into law by Governor Schwarzenegger in 2006. The law[2] calls for the Program to systematically collect biological specimens, such as blood and urine, from California residents and to analyze them for the presence of designated environmental chemicals.

The goals of the Program are to:

1) Determine levels of environmental chemicals in a representative sample of Californians;

2) Establish trends in the levels of these chemicals over time;

3) Assess the effectiveness of public health efforts and regulatory programs to reduce exposures of Californians to specific chemicals; and

4) Provide opportunities for meaningful public participation through activities and materials that are understandable and sensitive to the diverse needs of Californians.

The Program will actively engage the public through workshops, meetings, surveys and other methods to receive input and advice on program design and implementation, including the process of choosing which chemicals will be analyzed. The Biomonitoring Program will also receive expert technical advice from an external Scientific Guidance Panel[3]. In addition to measuring a number of environmental contaminants, the Program will securely store portions of biological samples for future analysis by the Program, universities and other researchers.

[1] Senate Bill 1379, Perata, Chapter 599, Statutes of 2006
[2] To link to law visit http://www.oehha.ca.gov/multimedia/biomon/pdf/sb_1379_bill_20060929.pdf
[3] To read more about the Scientific Guidance Panel, visit http://www.oehha.ca.gov/multimedia/biomon/biomon1.html#t2

Why is biomonitoring important? What difference will it make to the health of Californians?

The California Environmental Contaminant Biomonitoring Program was created to help identify the presence of toxic chemicals in Californians and to help shape public health and environmental policies. Through biomonitoring we can better understand the exposures of Californians to environmental chemicals – whether certain exposures are increasing or decreasing, and whether some groups of people are much more exposed than others to specific substances. It can also be used to explore potential linkages between chemical exposures and specific diseases or other adverse outcomes. This information can be used to evaluate and, as appropriate, make changes environmental protection programs to improve the health of Californians.

Who will be biomonitored?

As directed by the enabling legislation, the Program will recruit participants who reflect the "age, economic, racial, and ethnic composition" of California's population. Analysis of biological specimens from these participants will result in a statewide "snapshot" of environmental chemical exposures in a representative group of Californians. For the participants to be representative of California's population, they must be chosen using generally accepted statistical principles for sampling populations. Potential participants identified through this process will be contacted directly by Program staff. Participation is entirely voluntary. Members of the general public who contact the Program asking to have their blood or urine analyzed cannot be included, as this would undermine the scientific validity of the sampling process.

In addition, the law provides for "statistically valid and scientifically based" community studies. Communities studied may include populations living in a particular geographic area, or populations experiencing a common health outcome, or those that may share common chemical exposures related to occupation, lifestyle, ethnicity, gender, age or other characteristics. Thus, assuming adequate funding through the state budget process, the Program will track statewide exposure trends over time, as well as examine community exposures.

Can I volunteer to be tested?

No. For the participants to be representative of California's population, they must be chosen using generally accepted statistical principles for sampling populations. Members of the general public who contact the Program asking to have their blood or urine analyzed cannot be included, as this would undermine the scientific validity of the sampling process.

What kinds of information and samples will be collected from participants?

The Program is currently being designed and, therefore, the specific information to be requested from participants has not been finalized. Participants will likely be asked about their age, race/ethnicity, gender, occupation, health status, diet, and certain activities. Participants will be asked to provide samples of blood and urine to be analyzed, and will also have their height and weight measured.

As indicated in the legislation, participants may receive their own individual results upon request. All information from individuals, including the results of the chemical analysis of their blood and urine, will be kept strictly confidential, as required by law.

Any reports summarizing the results of blood and urine testing will not disclose information about any specific individual (see below).

Which chemicals will be selected for biomonitoring in California?

As spelled out in the law, the selection of chemicals proceeds by a two-step process. The first is to identify "designated chemicals" – those chemicals that should be considered for biomonitoring. Under the enabling legislation, the roughly 300 chemicals currently biomonitored by the U.S. Centers for Disease Control and Prevention (CDC) have been deemed "designated chemicals." The Scientific Guidance Panel can add to this pool of designated chemicals using specific criteria.

There are literally thousands of environmental chemicals that could be included; however, the Program will only be able to analyze a limited number of these. Therefore, the second step is to identify chemicals of high priority for biomonitoring in California. The Scientific Guidance Panel will make recommendations regarding which chemicals should be given priority.

Chemical selection will be routinely discussed at Scientific Guidance Panel meetings. Members of the public will have an opportunity at these meetings to comment which chemicals should be considered. Ultimately, the Program will select the specific chemicals to be measured will be selected by the Program, as directed by the enabling legislation. But, the selection will be informed by public input and by the recommendations of the Scientific Guidance Panel. To find the location of the meeting and agenda, visit http://www.oehha.ca.gov/multimedia/biomon/index.html

As noted, the Program will be able to measure only a limited number of the designated chemicals. However, the Program anticipates measuring additional chemicals every two years once sampling has begun.

Who is carrying out the California Environmental Contaminant Biomonitoring Program?

The Program is a collaborative effort of three departments in California State government:

- The California Department of Public Health (CDPH) www.cdph.ca.gov

CDPH is the lead department for the Biomonitoring Program and is responsible for sample design, questionnaire development, field specimen collection and clinic work, data management and analysis. CDPH will develop laboratory methods and test for metals and non-persistent organic chemicals, and will communicate test results to participants. Also, CDPH will securely store some specimens for future testing.

- The Office of Environmental Health Hazard Assessment (OEHHA) www.oehha.ca.gov

OEHHA is responsible for staffing and administering the Scientific Guidance Panel. It has responsibility for providing technical analyses to support the selection of chemicals for biomonitoring, and shares responsibilities with CDPH for public outreach, data analysis and questionnaire design efforts.

- The Department of Toxic Substances Control (DTSC) www.dtsc.ca.gov

DTSC will develop laboratory methods and test specimens for persistent organic compounds and analyze data that pertain to its regulatory mandates.

CDPH is in the Health and Human Services Agency, while OEHHA and DTSC are in the California Environmental Protection Agency.

What is the Scientific Guidance Panel?

The nine-member Scientific Guidance Panel, consisting of expert scientists appointed by the Governor and the State Legislature, will play a major role in the California Biomonitoring Program. Panel members will provide scientific review of the Program design and implementation, and will make recommendations for chemicals to be analyzed.

By law the panel will meet a minimum of three times a year. Panel meetings are open to the public in accordance with the Bagley-Keene Open Meetings Act[4].

[4] To read about Bagley-Keene visit, http://www.ag.ca.gov/publications/bagleykeene.pdf

How does California's Biomonitoring Program differ from the national program?

CDC conducts a biomonitoring program that provides nationally representative data for three racial/ethnic groups: non-Hispanic whites and blacks, as well as Hispanics. The CDC program is not designed to provide information representative of individual states. California's Biomonitoring Program will provide information about specific chemical exposures applicable to Californians. For information about the federal program, visit www.cdc.gov/biomonitoring.

Unlike the federal program, California's Biomonitoring Program plans to gather specific information about levels of certain chemicals in a representative sample of Californians. In addition, participants will complete questionnaires to elicit information about how they might have come in contact with tested chemicals. The chemical analysis and questionnaire results will help in assessing the effectiveness of public health efforts and regulatory programs to reduce Californians' exposures to these specific chemicals.

What is the role of the federal Centers for Disease Control and Prevention ("CDC") in the California Program?

The CDC provides technical assistance and consultation to California in the areas of sampling strategy, data collection methods and data management systems. CDC laboratory staff will also assist the Program by sharing chemical analysis methods with state laboratories and training state laboratory staff. CDC personnel will also assist in development of rigorous protocols to ensure that blood, urine and other biological specimens are tested in the most accurate and valid manner.

When will biomonitoring results be available?

The Program will need several years of planning before contacting potential participants and collecting data. Currently, the laboratories are purchasing equipment and beginning to develop and test methods for chemical analyses. Computer systems for tracking samples and reporting and accessing results are being designed. Methods to obtain a state-wide representative sample are under development. The process for obtaining public input to the Program has begun. Ultimately, the Program's schedule will depend on the availability of funding in future years to continue these efforts.

As indicated in the legislation, participants may receive their own individual results upon request. Public and legislative reports that do not contain any identifying or confidential information will be made available through the Biomonitoring Program's website. The first reports are due in 2010.

How can the public become involved with the California Biomonitoring Program?

Public input is critical to implementation of the Program. Opportunities to provide input on different aspects of implementation, including selection of chemicals to be measured, will be available at public meetings and workshops, Scientific Guidance Panel meetings, and via internet-based surveys.

You can learn more about Program activities by:

- Visiting the Program website at http://www.oehha.ca.gov/multimedia/biomon/index.html
- Subscribing to the Program's free Biomonitoring listserv. This can be done by visiting the Program's website at the above address, and clicking on the words "Stay Informed" in the right-hand column. You can also subscribe to the listserv at http://www.oehha.ca.gov/Listservs
  Subscribers will receive e-mail notifications about Program updates and opportunities to participate in the implementation of the Program, including public meeting and workshop announcements and other calls for public participation.
- Attending Scientific Guidance Panel meetings. Attendance can be in-person or via the web; there will be opportunities to ask questions at the meetings and via e-mail;
- Attending public meetings and workshops, which will be held periodically in different areas in California;
- Participating in public conference calls, which will be announced via the Program website and the biomonitoring listserv.

If you do not have easy access to e-mail and would like to be informed about the Program by regular mail, please send your name, address and phone number to: David Berger, OEHHA, 1515 Clay Street, 16th floor, Oakland, CA 94612, or call 510-622-2661.

If you have additional questions about this program, please contact the Biomonitoring Program staff at the following e-mail address: biomonitoring@oehha.ca.gov.

What can I do if I am concerned about exposure to a toxic chemical?

If you think you have been exposed to harmful chemicals at work, please visit the website of the Occupational Health Branch, California Department of Public Health, at http://www.dhs.ca.gov/ohb/ or call the Workplace Hazard Helpline (866) 282-5516 for more information.

For possible chemical exposures that are not work-related, please talk with your physician or health-care provider. Being exposed to a toxic chemical or finding the chemical in your body does not, in itself, indicate that you have or will have a health problem. Also, most chemicals that have been studied display "dose-response" relationships, in which effects are more severe or more likely to occur with high versus low levels of exposure. For some chemicals, like the metal lead, the blood levels that cause serious and severe health effects in infants, children and adults are well understood. For most chemicals, however, comparable information is not available.

If you would like to find out more about childhood lead poisoning visit: http://www.cdph.ca.gov/HealthInfo/Pages/leadpoisoning.aspx. For information on lead testing or resources, open the following link: lead testing.

Scientific analyses of data from animal and human studies are done to understand the exposure levels at which chemicals are likely to be harmful, or the degree of risk a particular exposure may cause. However, most chemicals in use today have not been thoroughly studied with respect to their potential toxicity to humans.

Where can I find more information about toxics and environmental health issues?

For more information about biomonitoring, go to the CDC's National Biomonitoring Program at http://www.cdc.gov/biomonitoring

More information about the toxic effects of specific chemicals is available at the following sites.

- Toxic air contaminants: OEHHA TAC site or EPA air toxics site
- Drinking water contaminants: www.oehha.ca.gov/water/phg/allphgs.html
- Carcinogens and reproductive toxicants: www.oehha.ca.gov/prop65/policy_procedure/ntptechrev.html
- Pesticides: http://www.oehha.ca.gov/pesticides.html, http://www.epa.gov/pesticides, and http://www.cdpr.ca.gov

Additional information can be found on the following federal government sites:

- U.S. Agency for Toxic Substances and Disease Registry (ATSDR): http://www.atsdr.cdc.gov/
- U.S. Environmental Protection Agency: http://www.epa.gov; http://www.epa.gov/tri/chemical/

- U.S. National Center for Environmental Health, CDC: http://www.cdc.gov/nceh/
- U.S. National Institute of Occupational Health and Safety: http://www.cdc.gov/niosh

See also the following international sites:

- International Agency for Research on Cancer (IARC) Monograph program site: http://monographs.iarc.fr/
- European Human Biomonitoring program: http://www.eu-humanbiomonitoring.org/
- World Health Organization, International Program on Chemical Safety: http://www.who.int/ipcs/publications/ehc/ehc_alphabetical/en/index.html

The private sector and NGOs also sponsor websites with information on biomonitoring and chemical toxicity. Several of these websites are listed below. These websites are provided only as potential additional resources for the public. Any opinions, statements or conclusions provided at any of these websites are those of the websites' sponsors and are not necessarily those of the Program, CDPH, OEHHA or DTSC. Listing of these sites does not represent any actual or implied endorsement by the Program, CDPH, OEHHA or DTSC.

- American Chemistry Council: http://www.americanchemistry.com/
- Biomonitoring Info: http://www.biomonitoringinfo.org/
- Environmental Defense Fund (Scorecard link): http://www.scorecard.org/
- Environmental Working Group: http://www.ewg.org/
- National Resources Defense Council: http://www.nrdc.org/
- Worksafe: http://www.worksafe.org/